# National Transportation Safety Board

Washington, D.C. 20594
Office of Marine Safety

## Interview Summary – DCA22FM005

**Interview with: Trent Samples – James Marine Inc.**
**Date/Time: December 14, 2021, at 1000 CST**
**Location: *Telephonic***
**Interviewed by: [redacted] - USCG, Bart Barnum - NTSB**
**In attendance: Adam Davis – Council for Marquette Transportation Company, Ms. McGee – Council for James Marine Inc.**
**Case: *Marquette Warrior* – DCA22FM005**

Mr. Samples was interviewed in conjunction with the investigation into the loss of steering and subsequent grounding of the towing vessel *Marquette Warrior* at mile marker 538 on the lower Mississippi River near Greensville, MS on November 21, 2021, at 1215 in the afternoon. The interview was not recorded. Below is a summary of notes taken by investigators during the interview. Quotes by the interviewee during the interview were captured by investigators and are identified using quotations in this summary.

- Mr. Samples has been Superintendent of electrical services for James Marine (JM) Inc. since July 2013.
- He was in change and oversaw the electrical supervises that were involved in the day-to-day work onboard the *Marquette Warrior* during the vessel refit in 2021.
- He indicated that a "Complete electrical replacement of all wiring and electrical devices" was completed during vessel refit.
- It was a 9-month project, in what he considered to be major project.
- James Marine Inc. disconnected the hot ends (port and starboard) from prime movers and the wiring from the switchgear. Once they were refurbished ashore (by Warden Electric) James Marine Inc. reinstalled the hot ends and wired to switchboards.
- Following installation of refurbished hot ends James Marine Inc. tested the generators. After a simple wiring adjustment both generators tested satisfactory.
- He considered Warden Electric to be a reputable company.
- James Marine Inc. participated in the sea trials following refit. Had 2 or 3 electricians onboard during these.
- To his knowledge he does not believe a megger-ohm test was preformed following the generator install. He would traditionally only conduct a megger-ohm test if there was a request for it or if there was a failure or fault.
- Valtec provided new steering pumps and motors for the vessel refit. James Marine Inc. installed the units.
- Steering motors were breaker protected with an overload on the motor starter. They had no undervoltage protection.
- Following the accident, he received 3 pictures of the inside of the *Marquette Warrior's* port generator hot end.

- He observed one of the interconnection windings of the generator that had a ring terminal that had burnt away (3/4 of the way) and some heat damage to some metering wirings.
- Stated refit project on *Marquette Warrior* started in January 2021. Bank trials took place in late September the same year.
- Instead of replacing with new, he indicated that both generator hot ends were refurbished during refit period. He said that this was a common and acceptable practice.
- After looking at the hot end damage pictures, he thought there was a possibility that the damaged interconnection may have turned slightly and made contact with one of the other interconnection wires.
- USCG Findings of Concern 006-21 – referring to loose hardware in steering hydraulic systems was referenced during interview. Mr. Samples indicated, that from looking at the pictures of the port hot end damage, vibration "possibly could" have contributed to the damage.
- He indicated that interconnections are secured withing the hot end to a stud that is mounted on a fiber insulated block. A nut, washer and lock washer are used to secure the ring terminal to the stud.
- He said that the interconnection in question (burnt on port hot end) would have come from shore side refurbishment facility already installed (connected and tightened).
- Checking the interconnections for torque was out of James Marine Inc.'s job scope and there was no reason for his electricians to be checking the interconnections for correct torque.
- He believed that verifying the torque of the interconnections would be withing the ability of an onboard engineer.
- He was not certain if the job task of verifying the torque of the interconnections was a routine task that would be completed onboard a vessel. He was also not aware of an OEM recommendation for a periodical torque check of the interconnections.
- From the damage he saw in the pictures of the port hot end, it appeared that "one phase may have completely failed on the high voltage 480V side." At that point the steering pump motors would have single phased, would not have been able to carry any torque and they would have stopped.
- He indicated that once power was restored there would have to be no manual reset of the steering motors for them to be started.
- He did not see anything in the pictures of the damaged hot end, that would have given an earth fault indication on the panel.
- Based off his observations of the pictures of the damaged hot end, he indicated that he would expect to see heavy fluctuations on the voltage and amperage meters along with vessel lights flickering.
- There would still be single phase power on the vessel, depending on which phase failed on the generator.
- He said that a typical hot end refurbishment consisted of a disassembly of the hot end down to its major component level, re-applying of electrolytic paint to the windings, and cleaning and replacement of worn parts such as bearings, bolts, and screws.
- There would be a possibility that the generator would be rewound if it failed a megger-ohm test.
- He indicated that during a hot end refurbishment process, the interconnects that he observed to be burnt and damaged, in the pictures, would have had to been disconnected and then reinstalled to facilitate the refurbishment.

- He said that a megger-ohm test would not have identified a loose interconnection at the time of installation, because there would not have been a short circuit at that time.